

**Request to Archive  
With The National Centers for Environmental Information  
For Harmful Algal Bloom Operational Forecast System  
Provided by NOS/CO-OPS**

**2016-11-15**

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

**1. Who is the primary point of contact for this request?**

Karen Kavanaugh  
NOS/CO-OPS  
HAB-OFS Product Coordinator  
240-533-0601  
karen.kavanaugh@noaa.gov

**2. Name the organization or group responsible for creating the dataset.**

DOC/NOAA/NOS/CO-OPS > Center for Operational Oceanographic Products and Services, National Ocean Service,  
NOAA, U.S. Department of Commerce

**3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.**

CO-OPS issues operational bulletins in pdf and georeferenced pdf formats that contain an analysis of ocean color satellite imagery, field observations, models, public health reports and buoy data and forecasts of potential harmful algal bloom (HAB) transport, intensification and associated respiratory irritation based on the analysis of information from data providers. The bulletins are issued twice weekly during an active HAB and once weekly during a non-HAB period to a list of subscribers. The bulletins help federal, state and local coastal resource managers; public health officials and research scientists coordinate HAB response efforts to minimize impacts.

Outputs: PDF or Georeferenced PDF operational bulletins; satellite imagery products processed and/or edited by the HAB-OFS for HAB detection (hdf4 and geotiff)

Coverage: eastern and western Gulf of Mexico and the Atlantic coast of Florida

**4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)**

From 2004-09-30  
Ongoing as continuous updates to the data record

**5. Edition or version number(s) of the dataset:**

N/A

**6. Approximate date when the dataset was or will be released to the public:**

2016-08-01

**7. Who are the expected users of the archived data? How will the archived data be used?**

Archived HAB operational bulletins will fortify NOAA's liability responsibilities. For instance, the archived product

will enable NOAA to better meet requests for information on past HABs and their impacts on tourism and related businesses.

Archived HAB operational bulletins and satellite imagery products processed and/or edited by the HAB-OFS will support the research of scientists studying historical blooms. Access to the satellite imagery products will also help drive research improvements to the algorithms that may be transitioned to operations.

**8. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?**

Both the HAB operational bulletins, and components such as the satellite imagery products, have gone through a user evaluation process before being transitioned to operations, as well as after the transition during the maintenance period. Users provide feedback on the quality and usability of the bulletin products. The forecast provided in the bulletins, as well as the satellite imagery products, also undergo assessments (i.e. accuracy, reliability, and skill) before being transitioned to operations and annually after they are made operational. Water samples collected in the field are used to confirm whether the satellite imagery correctly flagged an area as containing a HAB. The forecasts are validated using satellite imagery, as well as water samples and other observational data collected from the field.

NCEI did not participate in design reviews.

**9. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?**

This is the first time that the HAB operational bulletins will be archived at NCEI.

The satellite imagery products are processed and/or edited to be specific to HABs. This makes the HAB satellite imagery products unique from the raw satellite images archived by NESDIS. The manual nature of the editing makes the procedures difficult to repeat making the archival of the HAB satellite imagery products important.

The cell count data provided in the bulletins is currently archived at NCEI by NCDDC's HABSOS.

**10. List the input datasets and ancillary information used to produce the data.**

The following datasets are used to create the HAB forecasts contained in the HAB operational bulletins:

**FOR ARCHIVAL**

- \* Ocean color satellite imagery (MODIS Aqua, MODIS Terra, VIIRS):

- Format: hdf4, geotiff

- Total file size: 7.0 GB/week

- Description:

1. processed by CoastWatch (not for archival): chlorophyll-a daily image, 60 day mean, chlorophyll anomaly, R667 anomaly, ocean color reflectance

2. processed/edited by CO-OPS (for archival): revised chlorophyll anomaly, ensemble imagery product (combines the chlorophyll anomaly, spectral shape, and backscatter algorithms developed to target *Karenia brevis*)

Satellite imagery products are processed/edited daily. Data is monitored daily and the forecasts are generated for the twice weekly HAB bulletins and when unscheduled updates are needed.

**NOT FOR ARCHIVAL (ALREADY ARCHIVED BY OTHER ORGANIZATIONS)**

- \* water samples from the field: cell counts

- \* models/forecasts: hydrodynamic model (Texas General Land Office/Texas A&M University), NWS/NAM wind

forecasts, NWS/NDFD wind forecasts

\* public health reports: reports of observed impacts, fish kills, and discolored water

\* buoy data: NWS/NDBC observed wind data

**11. List web pages and other links that provide information on the data.**

<http://tidesandcurrents.noaa.gov/hab/overview.html>

**12. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.**

1. User guide: [http://tidesandcurrents.noaa.gov/hab/hab\\_publication/habfs\\_bulletin\\_guide.pdf](http://tidesandcurrents.noaa.gov/hab/hab_publication/habfs_bulletin_guide.pdf)

2. Algorithm documentation

3. Explanation of data/process

**13. Indicate the data file format(s).**

1. GeoTIFF

2. PDF

3. HDF4

**14. Are the data files compressed?**

gzip

**15. Provide details on how the files are named and how they are organized (e.g., file\_name\_pattern\_YYYYMM.tar in monthly aggregations).**

Label for HAB Bulletins: HABYYYYMMDD\_YYYY###\_region.pdf (where HAB=HAB bulletin, YYYY=issue year, MM=issue month, DD=issue day, ###=bulletin number in issue year, region=bulletin region as follows SFL=south Florida, NWFL=northwest Florida, EFL=east Florida, TX=Texas)

Label for processed/edited satellite imagery:

\* Revised chlorophyll anomaly product: Ex.

GM\_revised.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.tif and

GM\_revised.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.hdf (where GM=Gulf of Mexico; revised=revised chlorophyll anomaly; MODSCW=MODIS Aqua; 2016080=YYYY and Julian Date; C=composite followed by the number of images; 1740, 1915, 1920=image times, P2015365=YYYY and Julian Date used for the 60 day mean to calculate the chlorophyll anomaly)

\* Ensemble product: Ex. GM\_ensemble.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.tif and

GM\_ensemble.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.hdf (where all abbreviations are the same as above, but ensemble=ensemble product)

\* Revised chlorophyll anomaly ensemble product: Ex.

GM\_revisedens.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.tif and

GM\_revisedens.MODSCW\_P2016080\_C3\_1740\_1915\_1920\_E61\_P2015365.hdf (where all abbreviations are the same as above, but revisedens=revised chlorophyll anomaly ensemble product)

**16. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?**

HAB Bulletins: all are available in drop-down menus by region at

<http://tidesandcurrents.noaa.gov/hab/bulletins.html#archive>, they are also available internally to NOAA at

<http://hab.nos.noaa.gov/hab/archive/bulletins/>

Processed/edited satellite imagery products: available internally to NOAA at <http://hab.nos.noaa.gov/hab/archive/anomaly/>

**17. What is the total data volume to be submitted?**

**Historic Data: all historic data or data submitted as a completed collection.**

Total Data Volume: 842GB

Number of Data Files: 7000

**Continuous Data: data volume rate for a continuous data production.**

Total Data Volume Rate: 20GB per Month

Data File Frequency: 1 per Day

Data Production Start: 2004-09-30

**18. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.**

The Lake Erie HAB Bulletin will be transitioned to operations at CO-OPS in FY17. Once operational, the bulletin pdfs for Lake Erie will also need to be archived at NCEI. The processed/edited imagery products (hdf4 and geotiff) will also need to be archived.

**19. Describe the server that will connect to the ingest server at NCEI for submitting the data.**

Physical Location: SSMC4, Silver Spring, MD

System Name: HAB Production Server

System Owner: DOC/NOAA/NOS/CO-OPS > Center for Operational  
Oceanographic Products and Services, National Ocean Service,  
NOAA, U.S. Department of Commerce

Additional Information: Add comments as needed on applicable data types, etc.

**20. What are the possible methods for submitting the data to NCEI? Select all that apply.**

1. FTP PULL

**21. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.**

1. User interface to order and stage data for download

**22. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?**

No known constraints apply to the data.

**23. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.**

The HAB Bulletins and processed/edited satellite imagery provide the user community with critical decision support information that supports the mitigation of the impacts of harmful algal blooms on public health and marine resources (i.e. shellfish, marine mammals, etc.). Because harmful algal blooms significantly impact the economy and health of coastal communities, it is important to maintain archives of our HAB Bulletins and supporting data (ex. processed/edited satellite imagery) to fortify NOAA's liability responsibilities. In addition, archival will make the HAB Bulletins and processed/edited satellite imagery accessible to researchers and product developers working on improvements to HAB detection and forecasting.

Risks: CO-OPS only has a set amount of disk space to hold HAB forecast output. As the HAB forecast program continues and expands, CO-OPS will not be able to efficiently maintain all of the necessary products and data. Furthermore, processed/edited satellite imagery used to create the forecasts is currently only accessible to internal CO-OPS users and not discoverable to those in the research community that are working on improvements to HAB detection methods. This limits the effectiveness of the research being conducted.

**24. Are the data archived at another facility or are there plans to do so? Please explain.**

CO-OPS will maintain the HAB bulletins on its web server to meet the needs of its users.

The satellite imagery products will be maintained for a limited amount of time to support user needs and product assessments. Then the imagery will be deleted from the CO-OPS servers.

**25. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?**

Scott Cross

**26. Do you have a data management plan for your data?**

No

**27. Have funds been allocated to archive the data at NCEI?**

No

**28. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.**

N/A

**29. Is there a desired deadline for NCEI to archive and provide access to the data?**

No deadlines for archive or access.

**30. Add any other pertinent information for this request.**

None